

Appl. No. 10/759,059
Amendment dated: August 15, 2008
Reply to OA of: February 15, 2008

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1(currently amended). A method of modifying the surface of glass substrates, ~~comprising~~ consisting essentially of the following steps:

forming a film by coating the surface of glass substrates with a liquid organic-based solution selected from the group consisting of siloxane and silsesquioxane; and, applying heat treatment to the substrates coated with the organic-based solution to cross-link and solidify the liquid organic materials,

wherein said liquid organic-based solution, after the heat treatment, isolates Si-OH groups on the surface of glass substrates from the environment to restrain the occurrence of electro-osmotic flow.

2(original). The method according to claim 1, wherein said liquid organic-based solution is an organic-based spin-on-glass.

3(canceled).

4(previously presented). The method according to claim 1, wherein the step of heat treatment comprises placing the glass substrates coated with the liquid organic based solution in a furnace for heating.

5(previously presented). The method according to claim 4, wherein the heating is at a temperature of 425°C.

6(previously presented). The method according to claim 1, wherein said step of heat treatment is conducted in air.

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7(previously presented). The method according to claim 1, wherein said step of heat treatment is conducted in an inert gas environment.

8(original). The method according to claim 7, wherein the inert gas comprises nitrogen, argon or neon.

9(previously presented). The method according to claim 2, wherein said organic-based spin-on-glass has two side-linked functional groups R_1 and R_2 after cross-linking and solidification.

10(previously presented). The method according to claim 9, wherein R_1 and R_2 are independently selected from the group consisting of the functional groups of H, CH_3 , CH_3CH_2 , $CH_3CH_2CH_2$, C_6H_5 , $CF_3CH_2CH_2$, and other derivative organic functional groups.

11(previously presented). The method according to claim 1, wherein the material of said glass substrate comprises quartz, boron glass, sodium glass, or other glass material.

12(currently amended). A method for modifying the surface of glass substrates, ~~comprising~~ consisting essentially of the following steps:

filling a liquid organic-based solution in glass microchannels, said liquid organic-based solution is selected from the group consisting of siloxane and silsesquioxane;

removing the superfluous organic-based liquid; and,

applying heat treatment to the glass microchannels coated with the organic-based solution to cross-link the liquid materials,

wherein said liquid organic-based solution after the heat treatment isolates Si-OH groups on the surface of glass substrates from the environment to restrain the

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occurrence of ~~electro-osmosis~~ electro-osmotic flow.

13(original). The method according to claim 12, wherein said liquid organic-based solution is an organic-based spin-on-glass.

14(canceled).

15(previously presented). The method according to claim 12, wherein the step of heat treatment comprises placing the glass substrate coated with organic-based liquid in a furnace for heating.

16(previously presented). The method according to claim 15, wherein the heating temperature is at 425°C.

17(previously presented). The method according to claim 12, wherein said step of heat treatment is conducted in air.

18(previously presented). The method according to claim 12, wherein said step of heat treatment is conducted in an inert gas environment.

19(previously presented). The method according to claim 18, wherein the inert gas comprises nitrogen, argon, or neon.

20(previously presented). The method according to claim 13, wherein said organic-based spin-on-glass has two side-linked functional groups R_1 and R_2 after cross-linking and solidification.

21(previously presented). The method according to claim 20, wherein R_1 and R_2 are independently selected from the group consisting of the functional groups H, CH_3 , CH_3CH_2 , $CH_3CH_2CH_2$, C_6H_5 , $CF_3CH_2CH_2$, and other derivative organic

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functional groups.

22(previously presented). The method according to claim 12, wherein the material of said glass microchannels comprises quartz, boron glass, sodium glass, or other glass material.